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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,048	03/10/2004	Hideki Kamada	249171US0	2720

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EXAMINER	
STEELE, JENNIFER A	

ART UNIT	PAPER NUMBER
1794	

NOTIFICATION DATE	DELIVERY MODE
11/12/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/796,048	KAMADA ET AL.	
	Examiner	Art Unit	
	JENNIFER STEELE	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 August 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-20,23,24 and 27-35* is/are pending in the application.

4a) Of the above claim(s) *5-8 and 13-16* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-4, 9-12, 17-20, 23-24 and 27-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/1/2009 has been entered.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. **Claim 9-11 and 17-19 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Toray.** Toray teaches acrylic-vinyl blend as paper substitutes that comprise polyvinyl alcohol, polyacrylonitrile and acrylonitrile vinyl alcohol graft copolymers that are spun through noncircular orifices to form flat fibers. Toray teaches branched flattened fibers and teaches the fibers are

beaten to give a pulp having freeness of 305 cm^3. As to claims 9 and 17, Toray teaches beating the fibers to fibrillate into pulp. Toray refers to fibers for manufacturing paper substitutes and is referencing a process for producing wet laid nonwoven. Toray differs and does not teach a dry laid process and Toray does not teach fibrillating the fibers by water jet or needlepunching. The method of preparing the nonwoven and the method of fibrillating the fibers does not distinguish the material of the current application over the prior art of Toray. It should be noted that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art, the claim is unpatentable even though a different process made the prior product. In re Thorpe, 227 USPQ 964,966 (Fed. Cir. 1985). The burden has been shifted to the Applicant to show unobvious differences between the claimed product and the prior art product. In re Marosi, 218 USPQ 289,292 (Fed. Cir. 1983).

As to Claim 10 and 18, Toray anticipates an **L/D** of 10-50 and teaches an **L/D** of 11 (equal to 37.5/3.4).

As to Claim 11 and 19, Toray anticipates branched flattened fibers and teaches the fibers are beaten to fibrillate and produce a pulp having freeness of 305 cm^3.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. **Claim 9-11 and 17-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Toray (JP 49100327A as published in Derwent 1975-34944W) in view of Ohmory et al (US 5,972,501).** Toray teaches acrylic-vinyl blend as paper substitutes that comprise polyvinyl alcohol, polyacrylonitrile and acrylonitrile vinyl alcohol graft copolymers that are spun through noncircular orifices to form flat fibers. Toray teaches branched flattened fibers and teaches the fibers are beaten to give a pulp having freeness of 305 cm^3. As to claims 9 and 17, Toray differs and teaches beating the fibers to fibrillate into pulp and differs from the current application and does not teach a process of fibrillating the fibers by a water jet or needlepunching.

Ohmory teaches an easily fibrillatable fiber of vinyl alcohol based fibers wherein the fibers are formed by melt spinning through an orifice. Ohmory teaches the fibers

can be fibrillated by method of beating or preferably by a method of applying a high-pressure water jet onto the web (col. 10, lines 59-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a method of high-pressure water jet to the fibers of Toray motivated to fibrillate the fibers to produce a fabric capable of absorption.

As to Claim 10 and 18, Toray teaches an **L/D** of 10-50 and teaches an **L/D** of 11 (equal to 37.5/3.4).

As to Claim 11 and 19, Toray teaches branched flattened fibers and teaches the fibers are beaten to fibrillate and produce a pulp having freeness of 305 cm^3.

3. **Claim 12 and 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Toray (JP 49100327A as published in Derwent 1975-34944W) in view of Ohmory et al (US 5,972,501) and in further view of Howard (US 5230949).** Toray teaches acrylic-vinyl blend as paper substitutes that comprise polyvinyl alcohol, polyacrylonitrile and acrylonitrile vinyl alcohol graft copolymers that are spun through noncircular orifices to form flat fibers. Toray differs from the current application and does not teach a filler material.

Howard teaches fibers or filaments prepared with a filler material and extruded to form fibers that may be formed into nonwoven webs. The fillers can be minerals such as mica, montmorillonite or siliceous fillers that also include mica's vermiculite (col. 3, lines 4-25). Fillers are used to improve properties of the polymer fiber including mechanical and thermal properties. This invention is motivated to improve wettability or absorption.

Howard teaches filler amounts of 10-90% by volume of fibers, but preferably between 40-60% (col. 4, lines 43-51). The average particle size of the filler is preferably 0.01-10 microns. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine to add an inorganic filler material to the polyvinyl alcohol fibers motivated to improve the properties of the PVA fibers.

4. **Claim 2-3, 9-11, 17-19, 23, 24 and 27-35 rejected under 35 U.S.C. 103(a) as being unpatentable over Toray (JP 49100327A as published in Derwent 1975-34944W) in view of Ueda et al (US 5,208,104).** Independent claims 23 and 24 describe Polyvinyl alcohol fibers having an extremely flattened cross-sectional profile and having a mean thickness D (micron) that satisfies the following formula (1):

$$0.4 < D < 5$$

Wherein

- D = S/L; D indicates the mean thickness (micron) of the fibers which is a mean length (micron) of the minor side of the cross section of the fibers;
- S indicates the cross-section area (micron^2) of the fibers; and
- L indicates the length (micron) of the major side of the cross section of the fibers;
- Wherein said polyvinyl alcohol fibers consist of polyvinyl alcohol.

Claim 24 describes the fibers as extremely, thinly flattened.

Toray teaches acrylic-vinyl blend as paper substitutes that comprise polyvinyl alcohol, polyacrylonitrile and acrylonitrile vinyl alcohol graft copolymers that are spun

through noncircular orifices to form flat fibers. Toray teaches that the flat fibers are spun through orifice sized at 0.04 x 0.5 mm (40-500 micron) to produce flat fibers with a width of 37.5 micron and thickness of 3.4 micron. The fiber thickness is equated with the current application's mean thickness D and is in the range 0.4 and 5 micron as claimed. Toray teaches a flat fiber of the dimensions of the current application and teaches flat fibers that are comprised of polyvinyl alcohol, polyacrylonitrile and acrylonitrile vinyl alcohol graft copolymers.

Toray differs from the current application and does not teach a polymer produced from only PVA polymer. Ueda teaches a PVA fiber produced of a method of spinning a fiber with only PVA resin (col. 6, lines 35-38). Toray teaches a PVA graft copolymer that has the dimensions of a flat fiber as claimed in the current application and Toray presents a finding that it is known in the art to produce a PVA fiber with a flat structure.

Ueda teaches that PVA fibers can be produced that consists of only PVA and presents a finding that it is known in the art to produce a fiber that consists only of PVA. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the technique of Toray to produce a flat fiber that consists of only PVA motivated to produce a PVA fiber with the desired structure of flatness.

As to claims 2 and 27, Toray teaches an **L/D** of 10-50 and teaches an **L/D** of 11 (equal to 37.5/3.4).

As to claims 3 and 28 and 30, Toray teaches branched flattened fibers and teaches the fibers are beaten to fibrillate and produce a pulp having freeness of 305 cm^3.

5. As to claims 9 and 17, Toray teaches beating the fibers to fibrillate into pulp. Toray refers to fibers for manufacturing paper substitutes and is referencing a process for producing wet laid nonwoven. Toray differs and does not teach a dry laid process and Toray does not teach fibrillating the fibers by water jet or needlepunching. The method of preparing the nonwoven and the method of fibrillating the fibers does not distinguish the material of the current application over the prior art of Toray. It should be noted that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art, the claim is unpatentable even though a different process made the prior product. In re Thorpe, 227 USPQ 964,966 (Fed. Cir. 1985). The burden has been shifted to the Applicant to show unobvious differences between the claimed product and the prior art product. In re Marosi, 218 USPQ 289,292 (Fed. Cir. 1983).

As to Claim 10 and 18, Toray anticipates an **L/D** of 10-50 and teaches an **L/D** of 11 (equal to 37.5/3.4).

As to Claim 11 and 19, Toray anticipates branched flattened fibers and teaches the fibers are beaten to fibrillate and produce a pulp having freeness of 305 cm^3.

As to claims 31-33, Toray in view of Ueda differ from the current application and do not teach the properties of water absorbing speed of 123-128 mm/5 min. Toray is directed to a paper that has a strong water extracting ability (page 4, line 15). Toray measures the water extracting strength, or the strength of the sheet when 120% water is absorbed into the sheet. However Toray does not measure the speed that the water is absorbed into the fiber. It would have been obvious to one of ordinary skill in the art to optimize the properties of the PVA fiber motivated to produce a wiping sheet with the desired water absorbing speed.

As to claims 32 and 34, Toray in view of Ueda differ from the current application and do not teach a use of wiping off an acrylic plate spotted with Indian ink wherein the residue after wiping is 3.1 to 5.0%. Statements of use do not distinguish the current invention from prior art. Toray is directed to a paper that has a strong water extracting ability (page 4, line 15). A water extracting paper would be one that has good wiping characteristics.

6. **Claim 4, 12, 20, 29 and 31 rejected under 35 U.S.C. 103(a) as being unpatentable over Toray (JP 49100327A as published in Derwent 1975-34944W) in view of Ueda et al (US 5,208,104) and in further view of Howard (US 5230949).** Toray in view of Ueda differ from the current application and does not teach a filler material.

Howard teaches fibers or filaments prepared with a filler material and extruded to form fibers that may be formed into nonwoven webs. The fillers can be minerals such as

mica, montmorillonite or siliceous fillers that also include mica's vermiculite (col. 3, lines 4-25). Fillers are used to improve properties of the polymer fiber including mechanical and thermal properties. This invention is motivated to improve wettability or absorption. Howard teaches filler amounts of 10-90% by volume of fibers, but preferably between 40-60% (col. 4, lines 43-51). The average particle size of the filler is preferably 0.01-10 microns. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine to add an inorganic filler material to the polyvinyl alcohol fibers motivated to improve the properties of the PVA fibers.

Response to Arguments

7. Applicant's arguments filed 8/25/2009 have been fully considered but they are not persuasive. Applicant states that the only independent claims are claims 23 and 24 and claims 9-12 and 17-20 depended indirectly on independent claim 23. As submitted, claims 9-12 depend on withdrawn method claim 5 and claims 17-20 depend on withdrawn method claim 13.

The Objection to claims 9-12 as being dependent on a canceled claim 5 is withdrawn as claim 5 is withdrawn and not canceled.

Applicant states that claims 9-12 depend indirectly from claim 23. As submitted Examiner has written the previous rejection as claims 9-12 are dependent on withdrawn claim 5. Claim 5 is not directly or indirectly dependent on claim 23. Therefore the rejection of claims 9-12 over Toray is maintained. Similarly, claims 17-19 depend on

withdrawn claim 13 and withdrawn claim 13 does not depend directly or indirectly on claim 23. The rejection of claims 17-19 is maintained.

8. Applicant argues that the claimed fibers are hydrolysis resistant and the fibers of Toray does allow hydrolysis as Toray uses acrylonitrile. Therefore Toray teaches away from the use of hydrolysis resistant fibers. Applicant's further argue that Ueda discloses water soluble PVA fibers. However, Applicant's arguments are not commensurate with the scope of the claims as Applicant has not disclosed a hydrolysis resistant fiber. As noted in the Office Action of 5/12/2009, a PVA fiber can be water soluble as disclosed by Ueda or can have high strength and high water resistance such as referenced by Ohgi (US 5,166,263). And the article "Polyvinyl Alcohol Polymer" by Marten published online in the Encyclopedia of Polymer Science and Technology teaches that there is a wide variety of molecular weights and hydrolysis levels in PVA commercially available. The article continues to describe the solubility of poly(vinyl alcohol) is a function of the degree of polymerization and hydrolysis. Fully hydrolyzed PVA is only completely soluble in hot to boiling water, partially hydrolyzed grades are soluble at room temperature. Therefore the property of hydrolysis is not necessarily inherent to the PVA polymer and is a result of the process of producing the polymer. The references to Ohgi and Marten disclose that one of ordinary skill in the art could optimize the process of producing the PVA fiber motivated to produce the desired property of hydrolysis resistance. As the claims do not recite this limitation, the Examiner has not imported this limitation into the claims and into the rejection.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., hydrolysis resistance) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER STEELE whose telephone number is (571)272-7115. The examiner can normally be reached on Office Hours Mon-Fri 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 1794

/Elizabeth M. Cole/
Primary Examiner, Art Unit 1794

11/1/2009